SHUTDOWN TIMER VEHICLE BATTERY PROTECTION UNIT

The Shutdown Timer protects your vehicle battery from over discharge, and protects communications and other sensitive equipment from low and high voltage damage. This device turns off electrical loads at a preset time after the car engine is shut down. The timer starts when the ignition is turned off.

For assistance call Lind Technical Support at (800) 659-5956.

OPERATING INSTRUCTIONS

The Shutdown Timer is normally activated by sensing the alternator charge voltage level applied to the battery. When the alternator goes off, the timed sequence is started. An emergency switch on the timer allows for 12 minutes of operation beyond the timed sequence. An ignition switch input is provided as an optional activation method.

A unique feature of the Shutdown Timer is that it allows full testing of the system after installation. Momentary closure of the test switch reduces the delay time by a factor of 100 to allow a quick test of the system timing function.

Timer Start

The timer contacts close when the engine is started and the alternator is charging the battery (battery voltage exceeds 13.5 volts (27 volts)*. The Shutdown Timer will start when the engine is turned OFF and the battery voltage decreases to below 13 volts (26 volts).

Optional connection of the IGN terminal will result in the timer starting when the ignition switch is opened. Note - If the IGN terminal is connected to the accessories position of the ignition switch, the loads will be energized with the key in the accessories position.

**Special Note: If the vehicle electrical system does not exceed 13.5 VDC with the vehicle running, the IGN terminal connection must be used or incorrect shutdown timer operation will occur.*

Timer Setting

The Shutdown Timer ON time (after engine shut off) is set with the potentiometer on the top of the unit. A small screwdriver or key can be used to set the potentiometer.

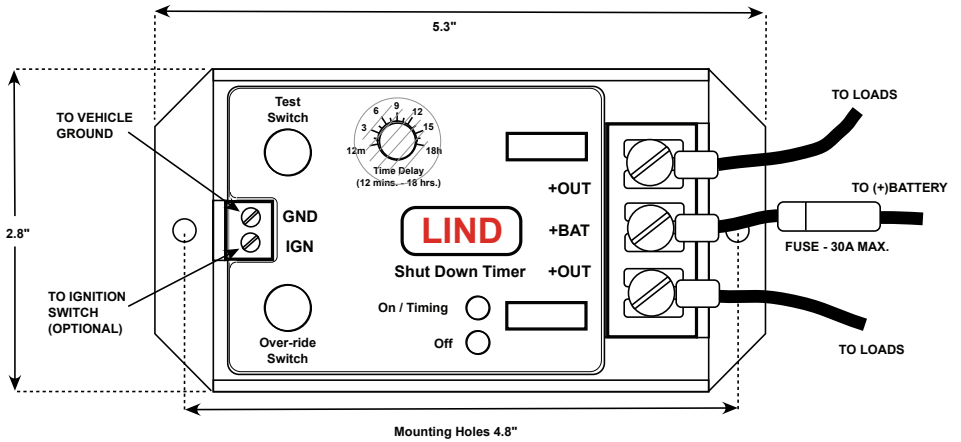
FEATURES

- Adjustable Shutdown Delay Time
- High and Low Voltage Shutdown
- Loads up to 30 amps at 12 VDC (20 amps at 24 VDC)
- Reverse Polarity Protected
- Automatic Battery Voltage Sensing Activation (battery not charging = timer ON)
- Optional Ignition Switch Activation (ignition OFF = timer ON)
- Optional Alarm Output (consult Lind for details)
- LED Indicators for ON, OFF and TIMING
- Speed-Up Time Test
- Override Emergency Operation Switch (up to 12 minutes)
- Automotive Load Dump Protection

** Specifications listed for 12 VDC input. Specifications for 24 VDC in parenthesis.*

TECHNICAL INFORMATION

Battery Voltage Sensing Turn-on Threshold:	> 13.5 volts (27 volts)
Battery Voltage Sensing Timer Start Threshold:	< 13.0 volts (26 volts)
Optional Ignition On Threshold:	> 5 volts (10 volts)
Optional Ignition Off Threshold:	< 2.5 volts (5 volts)
LED Flash Rate - Normal Timing:	2 seconds
LED Flash Rate - Test Mode Timing:	0.5 seconds
High Battery Voltage Disconnect Threshold:	> 18 volts (36 volts)
Low Battery Voltage Disconnect Threshold:	< 10.5 volts (21 volts)
Low Battery Voltage Disconnect Delay:	> 10 seconds
Input Voltage Range:	9 — 18 volts (18 — 36 volts)
Maximum Load (two output connections):	30 amps/15 amps each (20 amps/10 amps each)
Current Draw in OFF Mode:	9 mA
Current Draw in ON/TIMING Mode:	95 mA
Adjustable Shutdown Delay Time:	0 sec — 4 hrs, 5 sec — 2 hrs, and 12 min — 18 hrs depending on model
Over-ride Mode Time Setting:	12 minutes (over-rides time adj. setting)
Speed-Up Time Test Switch:	Set delay divided by 100
Operating Temperature:	-50° — 75° C (-58° — 167° F)



INSTALLATION

- Mount the Shutdown Timer in a cool, dry place. An optional splashproof version is also available. The Shutdown Timer is connected between the +12 volt of the vehicle electrical system and the loads to be controlled. The loads may be radios and computers or other electrical loads (lights and flashers).
- The Shutdown Timer terminal marked +BAT must be connected to the system +12 volts through a suitable fuse, using appropriately sized wire. Better protection is provided if multiple loads are fused individually between the Shutdown Timer and the load.
- Loads are connected to either or both of the +OUT terminals.
- On models with the high current terminal block, strip back the wire 0.35" prior to insertion. Use #10 spade lugs on the screw terminal models.
- Connect the GND terminal to a good chassis ground. The Shutdown Timer is powered from the +BAT input and the ground.
- Activation of the Shutdown Timer's timing period may be automatic by either sensing the battery voltage drop when the engine is turned OFF or by the optional IGN connection to the ignition switch.
- For the ignition switch activation option, connect the IGN terminal of the Shutdown Timer to the ignition switch terminal that goes to zero volts when the engine is turned OFF.
- The GND and IGN connections carry very little current (< 0.1 amp). Wire gauge is determined by mechanical suitability. Strip back wires 0.25" prior to installation.

Notes

1. *On some models each output connection can be protected by a fuse rated at 15 amps (max).*
2. *When using the ignition switch option, the Shutdown Timer period will not start if the engine dies.*

DELAY TIME SET-UP

The Shutdown Timer's delay time is set with the time delay potentiometer. The Potentiometer is on the front face of the Shutdown Timer. Point the arrow on the potentiometer to the desired delay time.

TESTING

- With the engine running the green LED will be ON and power is applied to the loads.
- Turn the engine OFF and the green LED will flash at a 2 second interval to indicate normal timing.
- Momentarily close the Test Switch. The green LED will flash rapidly indicating fast test timing. Shutdown will occur in 1/100 of the normal time set. Set to one hour the Shutdown Timer will time out in 36 seconds. The red LED will come ON when the outputs turn OFF.
- Momentarily close the over-ride switch. The green LED will flash at the normal rate indicating normal timing in over-ride mode. The over-ride switch will provide 12 minutes of additional operation after the normal time period has been completed, even with battery voltage lower than 10.5 volts (21 volts). The over-ride switch does not work if the output is already on.
- Momentarily close the Test Switch. The green LED will blink rapidly indicating fast test timing. Shutdown will occur in about 8 seconds and the red LED will come ON.

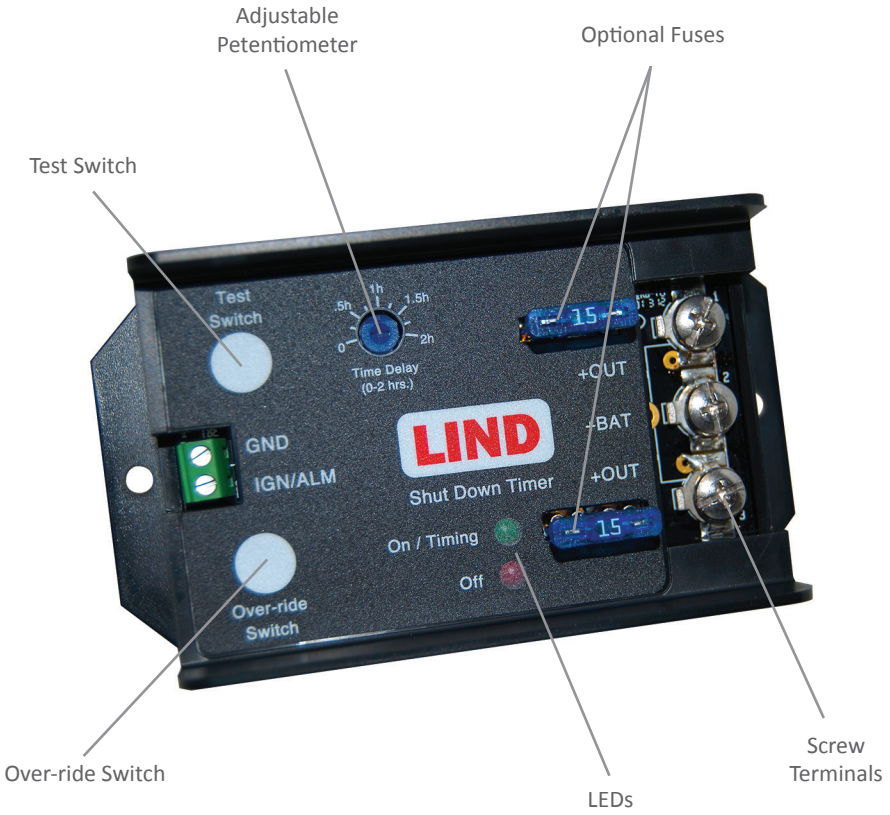
Notes

1. *The Shutdown Timer outputs will turn ON if the automobile battery is charged from an external source. The output loads should be turned OFF when externally charging.*
2. *The low voltage detection circuit has a 10 second delay to avoid load disconnection when starting the automobile.*

Screw Terminal Output *

Terminal Block Output *

** Both versions shown with optional fuses.*



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LIMITED WARRANTY

Lind Electronics, Inc. (LIND) warrants the circuit assembly portion of products manufactured by it to be free of defects in material and workmanship for a period of 3 years from the date of purchase under normal use. During this warranty period, LIND will, at its option, repair or replace the product at no charge for parts or labor when the product is returned postage paid as a complete unit to LIND. Proof of purchase and a letter explaining the problem must accompany the returned unit.

This warranty does not apply if any part of the adapter, its cables or connection jacks have been altered, subjected to abuse, accident or misuse. This warranty excludes incidental or consequential damage resulting from the product or the use of the product. This warranty is in lieu of all other warranties expressed or implied and no person is authorized to assume for LIND any other liability in conjunction with this product. The warranty gives you, the purchaser, specific legal rights and you may have other rights which may vary from state to state and country to country.

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